

## 8-22 LOWER UNIT

Start the engine and observe the tattle-tale flow of water from the idle relief in the exhaust housing. The water pump installation work is verified. If a flush attachment is connected to the lower unit, **VERY LITTLE** water will be visible from the idle relief port. Shift the engine into the three gears and check for smoothness of operation and satisfactory performance.

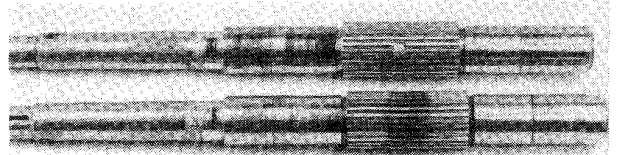
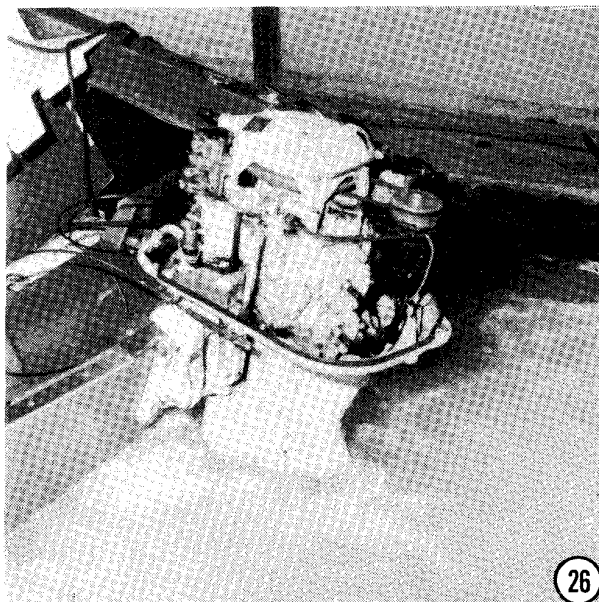
### 8-6 TYPE II LOWER UNIT SERVICE MANUAL SHIFT -- SINGLE ENCLOSED HOUSING

60 HP -- 1 $\frac{1}{4}$  THRU 1 $\frac{1}{2}$   
 65 HP -- 1968  
 75 HP -- 1960 THRU 1965  
 80 HP -- 1966 AND 1967  
 85 HP -- 1 $\frac{1}{8}$

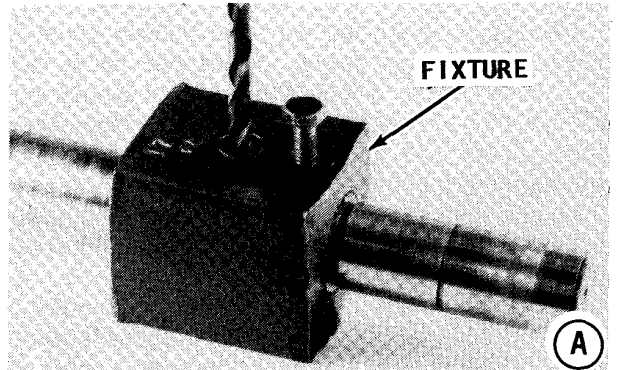
On the 75 hp -- 1960, the pinion gear and bearing assembly, and the driveshaft bearing assembly were different from the other lower units covered in this section. Where these differences occur, they will be noted in the procedures and supported with accompanying illustrations.

#### Clutch Dog Modification

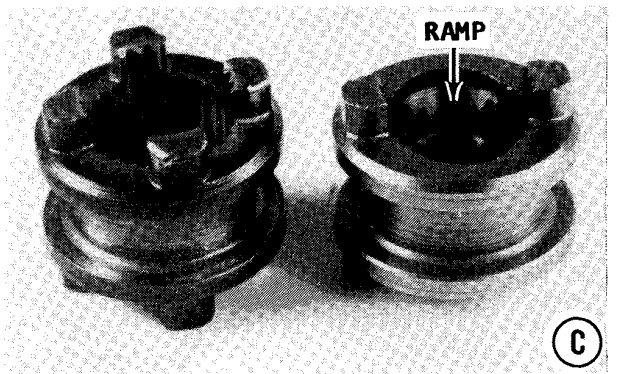
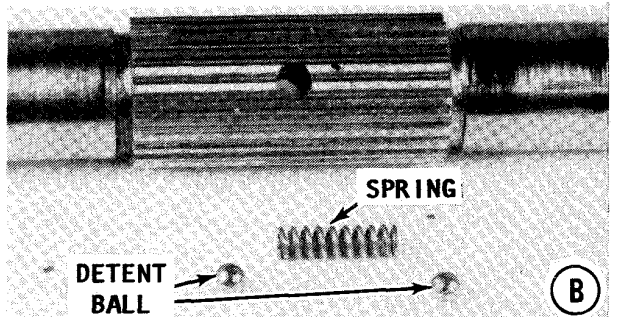
A standard unit from the manufacturer included a spline for the clutch dog to operate into forward and reverse gears. Design of the clutch dog caused it to "chatter" or the unit to slide slightly out of gear during normal operation. This action caused the ears of the clutch dog to wear very rapidly.



Modified propeller shaft (top) with the hole drilled for the spring, as explained in the text. The bottom shaft has not been modified.



As a result of this condition, a service bulletin, fixture, new clutch dog, and associated parts, were dispatched from the factory, Illustration "A". Service centers were instructed to modify the lower unit any time it was disassembled. A hole was drilled through the propeller shaft, Illustration "B". A spring and two balls, provided in the package, were installed on the propeller shaft, one on either side. A groove had been cut into the inside diameter of the new clutch dog. When the new clutch dog is placed in the **NEUTRAL** position, the groove



is over the balls. The spring exerts a force on the balls to hold the clutch dog in position.

Two ramps are manufactured on the inside surface of the clutch dog, one towards the forward gear, and the other towards the reverse gear, Illustration "C". As the clutch dog is moved toward either forward or reverse gear, the spring and balls exert a small force on the clutch dog to prevent the "chattering".

If the unit being serviced has not had this clutch dog modification incorporated, the authors strongly recommend the propeller shaft be taken to an authorized OMC dealer shop and the work performed. **DO NOT** attempt to drill the hole without the special fixture.

The following procedures and supporting illustrations cover service of the original factory delivered lower unit without the spring and balls. However, during the assembling sequence, extra procedures and supporting illustrations are included as an aid to installation.

## TROUBLESHOOTING

Detailed troubleshooting procedures for this lower unit are presented in Section 8-4, beginning on Page 8-7.

Failure of a lower unit to function properly can almost always be traced to some outside action or condition other than normal wear of the components. Therefore, anytime troubleshooting of a lower unit is required, the cause of the malfunction or faulty part **MUST** be discovered and corrected. If this is not done, rebuilding the lower unit will only give satisfactory service for a very short time.

## WORDS OF ADVICE

One contributing factor to lower unit problems can be blamed on the helmsman's operation. If the operator attempts to "EASE" the unit into gear, he is causing problems instead of preventing them. Any time the unit is shifted into, or out of gear, it must **ALWAYS** be done with a definite and deliberate action.

Another problem area, especially on a V4 unit, is in the linkage from the shift handle to the lower unit. The connection at the end of the shift handle consists of a "bellcrank". Over a long period of time and operation, the bellcrank and the rod fittings

wear, developing slack in the linkage to the lower unit. Without tight fittings, free of slack, the lower unit cannot be shifted fully into gear as the design engineers intended. Therefore, this area should be checked early in the troubleshooting work.

## LOWER UNIT REMOVAL

### Propeller Removal

Remove the propeller according to the detailed procedures outlined in Section 8-2.

### Draining Lower Unit

Drain the lower unit according to the detailed procedures outlined in Section 8-3.

### Preparation Work

Disconnect the cables from the battery. Remove the hood. Disconnect the shift cable from the shift handle. On the starboard side of the engine, remove the egg-shaped outer window from the exhaust housing, about half way down. After the outer is removed, remove the inner elongated window.

### Lower Unit

1- Observe the shift rod connection through the windows. If the engine does not have the long extension, the connector will be about 1-1/4" (3.18 cm) long. Remove the lower screw in the connector. After the screw is loose, it may be necessary to grasp it with a pair of needle-nose pliers in order to withdraw it from the connector.

2- If the unit being serviced has the long shaft extension, remove the eight bolts securing the lower unit to the extension.

